

Amendment Under Article 19

CLAIMS

1. (Amended) A pneumatic tire, in which a plurality of substantially quadrilateral land portions are arranged on a tread and defined by two sets of main grooves having different angles with respect to a tire equatorial plane and in which auxiliary grooves are arranged in said land portions, characterized:

in that said land portions have diagonal lines of different lengths;

in that said auxiliary grooves are arranged at the central portions of said land portions, substantially along the shorter diagonal lines; and

in that end portion grooves which are opened to said main grooves are connected to the end portions of said auxiliary grooves.

2. (Deleted)

3. (Amended) A pneumatic tire as set forth in Claim 1, characterized in that said auxiliary groove have a length of no less than 30 % but less than 70 % of the length of said shorter diagonal lines.

4. A pneumatic tire as set forth in any of Claims 1 to 3,

characterized in that the angle formed between said shorter diagonal lines and said auxiliary grooves is within ± 20 degrees.

5. A pneumatic tire as set forth in any of Claims 1 to 4, characterized in that said auxiliary grooves are arranged substantially on said shorter diagonal lines.

6. A pneumatic tire as set forth in any of Claims 1 to 5, characterized in that said auxiliary grooves have a depth of no less than 30 % of the depth of said main grooves.

7. (Deleted)

8. (Amended) A pneumatic tire as set forth in any of Claims 1 to 6, characterized in that said end portion grooves are opened in said main grooves the closest to the end portions of said auxiliary grooves.

9. A pneumatic tire as set forth in Claim 8, characterized in that the angle formed between said end portion grooves and said auxiliary grooves is obtuse.

10. (Amended) A pneumatic tire as set forth in Claim 8 or 9, characterized in that the angle formed between said end

portion grooves and the neighborhood main grooves, in which said end portion grooves are not opened, of said main grooves is no more than 30 degrees.

Sub A3 11. (Amended) A pneumatic tire as set forth in any of Claims 8 to 10, characterized: in that said end portion grooves are formed on the two end portions of said auxiliary grooves; and in that one auxiliary groove is opened in one of the main grooves opposed to each other whereas the other auxiliary groove is opened in the other of the main grooves opposed to each other.

12. (Amended) A pneumatic tire as set forth in any of Claims 8 to 11, characterized in that said end portion grooves are as deep as or shallower than said auxiliary grooves.

13. A pneumatic tire as set forth in Claim 12, characterized in that the depth of said end portion grooves is no less than 10 % and no more than 30 % of the depth of said main grooves.

Sub A4 14. A pneumatic tire as set forth in any of Claims 1 to 13, characterized in that the shortest distance between the end portions of said auxiliary grooves and said main grooves the closest to said end portions is no less than 15 % but less than 35 % of the length of said shorter diagonal lines.

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15. A pneumatic tire, in which a plurality of substantially quadrilateral land portions are arranged on a tread and defined by two sets of main grooves having different angles with respect to a tire equatorial plane and in which auxiliary grooves are arranged in said land portions, characterized:

in that said land portion has an auxiliary groove extending therethrough from one side to another side; and

in that said auxiliary groove includes: a central auxiliary groove portion inclined in the same direction as that of the shorter diagonal line of the land portion and arranged at the central portion of said land portion; end portion auxiliary groove portions extending in directions different from that of said central auxiliary groove portion and opened into the main grooves which are the closest to the end portion auxiliary groove portions; and connection portions jointing said central auxiliary groove portion and said end portion auxiliary groove portions smoothly.

16. A pneumatic tire as set forth in Claim 15, characterized in that said connection portions are formed into arcuate shapes having a radius of curvature of no less than 3 mm and no more than 10 mm.

17. A pneumatic tire as set forth in Claim 15 or 16,

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characterized in that said central auxiliary groove portion has a length of less than 70 % of the length of said shorter diagonal line.

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18. A pneumatic tire as set forth in any of Claims 15 to 17, characterized in that the angle formed between said shorter diagonal line and said central auxiliary groove portion is within ± 20 degrees.

19. A pneumatic tire as set forth in any of Claims 15 to 18, characterized in that said central auxiliary groove portion is arranged substantially on said shorter diagonal line.

20. A pneumatic tire as set forth in any of Claims 15 to 19, characterized in that said central auxiliary groove portion has a depth of no less than 30 % of the depth of said main grooves.

21. A pneumatic tire as set forth in any of Claims 15 to 20, characterized in that the angle formed between said end portion auxiliary groove portions and the neighborhood main grooves, in which said end portion auxiliary groove portions are not opened, of said main grooves is no more than 30 degrees.

22. A pneumatic tire as set forth in any of Claims 15 to 21, characterized in that said end portion auxiliary groove

portions are as deep as or shallower than said central auxiliary groove portion.

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23. A pneumatic tire as set forth in Claim 22, characterized in that the depth of said end portion auxiliary groove portions is no less than 10 % and less than 30 % of the depth of said main grooves.

24. A pneumatic tire as set forth in any of Claims 15 to 23, characterized in that said auxiliary groove includes chamfered portions formed at the two corner portions of the opened portions of said auxiliary groove in the tread, when viewed in a section normal to the longitudinal direction at each point of the longitudinal direction.

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25. A pneumatic tire as set forth in Claim 24, characterized in that said chamfered portions have a gently bulging sectional shape in said section normal to the longitudinal direction of said auxiliary groove.

26. A pneumatic tire as set forth in Claim 24 or 25, characterized in that the maximum of the depth H of said chamfered portions is no less than 5 % and no more than 50 % of the groove depth D of said auxiliary groove.

Sub A7 → 27. A pneumatic tire as set forth in any Claims 24 to 26, characterized in that the maximum of the length L of said chamfered portions, as measured in parallel with the tread, in said section normal to the longitudinal direction of said auxiliary groove is no less than 5 % and no more than 50 % of the maximum width W, as measured in the tire axial direction, of the land portion having said auxiliary groove.

28. A pneumatic tire as set forth in any Claims 24 to 27, characterized in that the depth H of said chamfered portions at each point in the longitudinal direction of said auxiliary groove is changed gently so that the change in the ground contact pressure which occurs inside the land portion under a lateral force may be small.

5/13/87 29. A pneumatic tire as set forth in Claim 28, characterized in that the depth H of said chamfered portions takes its maximum at the land portion ends of said auxiliary groove and at the central portion of the land portion.